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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,725	12/16/2003	Tsunenori Yamamoto	503.39221CX1	3672

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EXAMINER

PIZIALI, JEFFREY J

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 10/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/735,725	Applicant(s) YAMAMOTO ET AL.	
	Examiner Jeff Piziali	Art Unit 2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/695,174.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/16/03 & 9/10/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/695,174, filed on 25 October 2000.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Independent claim 1 recites the subject matter of an "illumination control means for controlling an illumination start time and an illumination 'on' time of each of the illumination areas of the illumination unit *in response to a result of the comparison and the supplied data, which is correlated with data emphasis*" (emphasis added); and independent claim 11 recites the subject matter of an "illumination control means for controlling the light amount adjusting part of the illumination unit *in response to a result of the comparison and the supplied picture signal, which is correlated with picture signal emphasis*, to control a lighting timing and a

lighting period of time of the light source" (emphasis again added). Such subject matter was not described in the specification. As evidenced in Embodiment 1's display controller, the lighting control circuit [Fig. 2; 120] is independent from the comparison result of data emphasis operational circuit [Fig. 2;112] (see page 8 of the specification). Furthermore, as evidenced in Embodiment 2's display controller, the lighting control circuit [Fig. 8; 120] remains independent from the comparison result of data emphasis operational circuit [Fig. 8;112] (see pages 13-15 of the specification).

4. Claims 2-10 and 12-20 are further rejected under 35 U.S.C. 112, first paragraph, due to their respective shared dependencies upon rejected base claims 1 and 11.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2, 3, 14, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. The term "substantially identical" in claims 2, 3, 14, and 15 is a relative term which renders the claim indefinite. The term "substantially identical" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear how similar time integral values and visual sensation values must be before they would be considered "substantially identical" by one skilled in the art.

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8. Claims 5, 6, 8, 9, 17, and 20 are further rejected under 35 U.S.C. 112, second paragraph, due to their respective shared dependencies upon rejected base claims 2, 3, and 14.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura et al. (US 6,115,018) in view of Chen (US 5,592,193).

Regarding claim 1, Okumura discloses a liquid crystal display apparatus comprising a pair of substrates, at least one of which is transparent; a liquid crystal layer disposed between the substrates; a plurality of groups of electrodes [Fig. 1; M & N] disposed on at least one of the pair of substrates for applying an electric field to the liquid crystal layer; a liquid crystal display part having a plurality of active elements [Fig. 1; Clc] connected to the electrodes; drive means [Fig. 3; 21 & 25] supplied with display data from means for supplying data [Fig. 3; RGB Signal] to be displayed, for driving the individual pixels [Fig. 1; Clc] of the liquid crystal display part by applying a voltage corresponding to the display data to the individual pixels (see Column 1, Line 50 - Column 2, Line 17), the drive means including data emphasis means for comparing new display data supplied from the means for supplying data to be displayed with previous display data supplied from the means for supplying data to be displayed, and emphasizing and converting the new display data to designated display data in response to a result of the

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comparison and the supplied data (see Column 1, Lines 18-36 and Column 7, Line 60 - Column 9, Line 13). Okumura does not explicitly disclose an illumination unit nor an illumination control means.

However, Chen does disclose an illumination unit [Fig. 3; 64] including a plurality of illumination areas [Fig. 3; 64a-j] for illuminating a liquid crystal display part [Fig. 3; 62]; and an illumination control means [Fig. 3; 66] for controlling an illumination start time and an illumination "on" time of each of the illumination areas of the illumination unit in response to a response of the liquid crystal display part (see Column 4, Line 23 - Column 5, Line 6). Okumura and Chen are analogous art because they are from the shared field of driving liquid crystal displays. Thus, it would have been obvious to one skilled in the art at the time of invention to use Chen's backlight circuitry and synchronization method with Okumura's liquid crystal apparatus and comparison result, so as to provide a clear, bright image for display.

Regarding claim 2, Okumura discloses in case that any change is detected in the display data by the comparison, the data emphasis means emphasizes and converts the new display data so as to increase the change, and modifies a response of a corresponding pixel of the liquid crystal display part so as to be larger than a value corresponding to an original value of the new display data (see Column 1, Lines 18-36 and Column 7, Line 60 - Column 9, Line 13).

Additionally, Chen discloses that the illumination control means controls the illumination start time and the illumination "on" time of a corresponding one of the illumination areas [Fig. 3; 64a-j] of the illumination unit so that a time integral value of an amount of light passing through the corresponding pixel while a display characteristic is changing is substantially identical to a

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time integral value of an amount of light passing through the corresponding pixel while the display characteristic is stable (see Column 4, Line 23 - Column 5, Line 6).

Regarding claim 3, this claim is rejected by the same reasoning applied in the above rejection of claim 2; moreover Chen discloses the illumination control means controls the illumination start time and the illumination "on" time of a corresponding one of the illumination areas [Fig. 3; 64_{a-j}] of the illumination unit so that visual sensation values with respect to the light passing through the corresponding pixel in the course of response and after response are substantially identical to each other (see Column 4, Line 23 - Column 5, Line 6).

Regarding claim 4, Chen discloses the illumination start time and the illumination "on" time of a corresponding one of the illumination areas [Fig. 3; 64_{a-j}] of the illumination unit are predefined so as to be equal to average values of optimal values for all the display data dependent on the individual display data according to the response of the liquid crystal display part after data conversion (see Column 4, Line 23 - Column 5, Line 6).

Regarding claim 5, this claim is rejected by the same reasoning applied in the above rejection of claim 4.

Regarding claim 6, this claim is rejected by the same reasoning applied in the above rejection of claim 4.

Regarding claim 7, Chen discloses the illumination start time and the illumination "on" time of a corresponding one of the illumination areas [Fig. 3; 64_{a-j}] of the illumination unit are changed adaptively and determined so as to be average values weighted with the number of display data to be displayed at the area among values dependent on the individual display data according to the response of the liquid crystal display part after data emphasis and conversion (see Column 4, Line 23 - Column 5, Line 6).

Regarding claim 8, this claim is rejected by the same reasoning applied in the above rejection of claim 7.

Regarding claim 9, this claim is rejected by the same reasoning applied in the above rejection of claim 7.

Regarding claim 10, Chen discloses the light source includes a sheet-type light emitting element (see Column 4, Line 23 - Column 5, Line 6).

Regarding claim 11, this claim is rejected by the reasoning applied in the above rejection of claim 1; furthermore, Okumura discloses the display data is provided as a picture signal [Fig. 3; RGB Signal] (see Column 8, Lines 21-37). Okumura does not explicitly disclose a light source; an illumination unit, nor an illumination control means.

However, Chen does disclose at least one light source [Fig. 3; 64]; an illumination unit including a light amount adjusting part [Fig. 3; 66] for adjusting an amount of light from the light

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source for a plurality of illumination areas [Fig. 3; 64_{a-j}] of the illumination unit, and an illumination control means [Fig. 3; 66] for controlling the light amount adjusting part of the illumination unit in response to display contents of the liquid crystal display part [Fig. 3; 62] to control a lighting timing and a lighting period of time of the light source (see Column 4, Line 23 - Column 5, Line 6). Thus, it would have been obvious to one skilled in the art at the time of invention to use Chen's backlight circuitry and synchronization method with Okumura's liquid crystal apparatus and comparison result, so as to provide a clear, bright image for display.

Regarding claim 12, Chen discloses the light amount adjusting part of the illumination unit is transparent to light when a voltage is not applied to the light amount adjusting part (see Column 4, Line 23 - Column 5, Line 6).

Regarding claim 13, this claim is rejected by the same reasoning applied in the above rejection of claim 10.

Regarding claim 14, this claim is rejected by the same reasoning applied in the above rejection of claim 2.

Regarding claim 15, this claim is rejected by the same reasoning applied in the above rejection of claim 3.

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Regarding claim 16, this claim is rejected by the same reasoning applied in the above rejection of claim 4.

Regarding claim 17, this claim is rejected by the same reasoning applied in the above rejection of claim 4.

Regarding claim 18, this claim is rejected by the same reasoning applied in the above rejection of claim 17.

Regarding claim 19, this claim is rejected by the same reasoning applied in the above rejection of claim 17.

Regarding claim 20, this claim is rejected by the same reasoning applied in the above rejection of claim 17.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kawamura et al. (US 5,119,084), McKnight (US 6,144,353), Tanaka et al. (US 6,388,649), Conover et al. (US 6,414,664), Sakashita (US 6,501,451), and Sakashita (US 6,661,400) are cited to further evidence the state of the art pertaining to liquid crystal displays.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (703) 305-8382. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



18 October 2004



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